BELLCOMM, INC.

SUBJECT: Block II Fuel Cell First Article Configuration Inspection (FACI) Case 330

DATE: February 6, 1967

FROM: J. J. O'Connor

MEMORANDUM FOR FILE

The First Article Configuration Inspection (FACI) of the Block II Fuel Cell was held at Pratt & Whitney (P&W), South Windsor, Connecticut, January 24, 1967. Both MSC and NAA personnel attended this meeting which is one of a series of subsystem FACI leading up to the CSM 101 FACI in February.

Contractually, the Block II fuel cell is the Block I fuel cell plus fifteen authorized changes. Three of these changes, such as the gear pump, were incorporated into the Block I design (see Table I). The only change to the fuel cell schematic is the relocation of the glycol pump from the radiator output to the input; this was done to isolate the pump from the thermal transients caused by changes in the space orientation of the radiators.

For the Block II qualification program, seven significant changes (noted on Table I) were retrofitted to a development model fuel cell; this saved the cost of two end-item fuel cells. The qualification program was finished in December and the report will be available in mid-February.

Three Block I fuel cells are being retrofitted to the Block II configuration for the 2TV-1 tests. A Block I fuel cell is being set up in a vacuum chamber for real-time support of Mission AS-204.

Overall the fuel cells seem to be in good shape, and P&W has tight control in configuration management. The early problems with the fuel cell design seem to be solved since there are so few configuration changes between the Block I and II models. (All of the recent problems seem to be procedural). The maturity of the design is emphasized by the fact that P&W is doing very little redesign for the Manned Orbiting Laboratory (MOL) fuel cell.

2031-JJO-d

Attachment
Table I

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(See next page)

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TABLE I

Engineering Change no.	Title
Changes Incorporated into Block I Fuel Cells:	
402525	Modification of Heating Element Terminal Board
402555	Increased Potting on Connectors
402644	Retrofit of Block II Glycol Gear Pump
Changes Incorporated into Block II Fuel Cells:	
402464	Resilient Mount Pads on Brackets
402560	New Sensing Cable
420581	Lightweight Hydrogen Regenerator
402634*	Modified Hydrogen Pump-Water Separator
402531*	Improved Solenoid Valves
402650*	Brazed Connections in Oxygen Manifold
402603*	Improved Insulation on outside of stack
402573*	Improved Heater and Power Cable Connectors
402534*	Glycol Gear Pump
402647*	Relocation of Glycol Pump to Radiator Input
402691C	Plate Nut Incorporation
402824	Revised Glycol Flow Schedule

*Changes incorporated into the Block II qualification program test item.